

THE ASTROPHYSICAL JOURNAL
CONTENTS OF VOLUME 368, PART 1

1991 FEBRUARY 10, Number 1

	Page	Fiche
NEUTRINO OSCILLATIONS AND THE LEPTONIC CHARGE OF THE UNIVERSE <i>Martin J. Savage, Robert A. Malaney, & George M. Fuller</i>	1	23-B1
SIMULATED OPTICAL IMAGES OF GALAXIES AT $z \sim 1$ USING ULTRAVIOLET IMAGES OF NEARBY GALAXIES <i>Ralph C. Bohlin, Robert H. Cornett, Jesse K. Hill, Robert S. Hill, Wayne B. Landsman, Robert W. O'Connell, Susan G. Neff, Andrew M. Smith, & Theodore P. Stecher</i>	12	23-C1
LYMAN- α COMPANIONS TO HIGH- z QUASARS <i>Esther M. Hu, Antoinette Songaila, Lennox L. Cowie, & Alan Stockton</i>	28	23-D9
A STUDY OF TWO ABSORPTION-LINE COMPLEXES IN THE QUASAR UM 402 \equiv Q0207-003 <i>E. Joseph Wampler</i>	40	23-E11
NEW VELOCITY DISPERSIONS AND PHOTOMETRY FOR E AND S0 GALAXIES IN THE GREAT ATTRACTOR <i>Alan Dressler, S. M. Faber, & David Burstein</i>	54	23-G1
THE UNIVERSAL GALAXY ROTATION CURVE <i>Massimo Persic & Paolo Salucci</i>	60	23-G9
A SEARCH FOR INSTABILITY IN TWO FAMILIES OF SPHERICAL STELLAR MODELS <i>Martin D. Weinberg</i>	66	24-A1
EXTENDED STELLAR HYDRODYNAMICS FOR GALACTIC DISKS <i>Peter Amendt & Phil Cuddeford</i>	79	24-B1
PROPERTIES OF THE REDSHIFT. II. RADIAL VARIATION <i>W. G. Tifft</i>	105	24-D1
MILLIMETER INTERFEROMETER OBSERVATIONS OF INFRARED LUMINOUS GALAXIES: NGC 828 AND NGC 6240 <i>Z. Wang, N. Z. Scoville, & D. B. Sanders</i>	112	24-D9
STEPS TOWARD DETERMINATION OF THE SIZE AND STRUCTURE OF THE BROAD-LINE REGION IN ACTIVE GALACTIC NUCLEI. II. AN INTENSIVE STUDY OF NGC 5548 AT OPTICAL WAVELENGTHS <i>B. M. Peterson, T. J. Balonek, E. S. Barker, J. Bechtold, R. Bertram, N. G. Bochkarev, M. J. Bolte, D. Bond, T. A. Boroson, M. T. Carini, T. E. Carone, J. A. Christensen, S. D. Clements, A. L. Cochran, R. D. Cohen, D. Crampton, M. Dietrich, M. Elvis, A. Ferguson, A. V. Filippenko, K. J. Fricke, C. M. Gaskell, J. P. Halpern, J. P. Huchra, J. B. Hutchings, W. Kollatschny, A. P. Koratkar, K. T. Korista, J. H. Krolik, N. J. Lam, A. Laor, R. J. Leacock, G. M. MacAlpine, M. A. Malkan, D. Maoz, H. R. Miller, S. L. Morris, H. Netzer, C. L. M. Oliveira, J. Penfold, M. V. Penston, E. Pérez, R. W. Pogge, M. W. Richmond, W. Romanishin, E. I. Rosenblatt, L. Sadelmyer, A. Sadun, S. R. Sawyer, J. C. Shields, A. I. Shapovalova, A. G. Smith, H. A. Smith, P. S. Smith, W.-H. Sun, U. Thiele, T. J. Turner, S. Veilleux, R. M. Wagner, R. J. Weymann, B. J. Wilkes, B. J. Wills, D. Wills, & P. F. Younger</i>	119	24-E3
COORDINATED X-RAY, ULTRAVIOLET, AND OPTICAL OBSERVATIONS OF 3C 120 <i>L. Maraschi, L. Chiappetti, R. Falomo, B. Garilli, M. Malkan, G. Tagliaferri, E. G. Tanzi, & A. Treves</i>	138	24-F9
ON THE SIZE OF THE BROAD-LINE REGION IN ARAKELIAN 120 <i>Bradley M. Peterson & C. Martin Gaskell</i>	152	25-A1
THE LINE-EMITTING REGIONS OF THE EXCEPTIONAL SEYFERT GALAXY MARKARIAN 359 <i>Sylvain Veilleux</i>	158	25-A9
HIGH-EXCITATION EXTRANUCLEAR GAS IN SEYFERT GALAXIES <i>Christopher A. Haniff, Martin J. Ward, & Andrew S. Wilson</i>	167	25-B5
A ^{13}CO SURVEY OF THE SMALL MAGELLANIC CLOUD <i>M. Rubio, G. Garay, J. Montani, & P. Thaddeus</i>	173	25-C1
SEARCH FOR H_2 -He ALLOY FORMATION AT LOW PRESSURES AND COSMIC SNOWBALLS <i>M. Leventhal & A. P. Mills, Jr.</i>	178	25-C7

	Page	Fiche
MAGNETIC FLUX LOSS FROM INTERSTELLAR CLOUDS WITH VARIOUS GRAIN-SIZE DISTRIBUTIONS <i>Ryoichi Nishi, Takenori Nakano, & Toyoharu Umebayashi</i>	181	25-C11
EMISSION FEATURES IN THE SPECTRUM OF NGC 7027 NEAR 3.3 MICRONS AT VERY HIGH RESOLUTION <i>R. P. Lowe, J. M. Moorhead, W. H. Wehlau, & J.-P. Maillard</i>	195	25-E1
ULTRAVIOLET INTERSTELLAR LINES IN THE SPECTRUM OF π SCORPII RECORDED AT 2 KILOMETERS PER SECOND RESOLUTION <i>Charles L. Joseph & Edward B. Jenkins</i>	201	25-E9
EXCITATION OF MILLIMETER AND SUBMILLIMETER WATER MASERS <i>David A. Neufeld & Gary J. Melnick</i>	215	25-F11
FARADAY ROTATION AND PHYSICAL CONDITIONS IN THE CRAB NEBULA <i>M. F. Bietenholz & P. P. Kronberg</i>	231	26-A1
ON WINDS AND X-RAYS OF O-TYPE STARS <i>Tomasz Chlebowski & Catharine D. Garmany</i>	241	26-B1
ENERGY DISTRIBUTIONS OF SYMBIOTIC NOVAE <i>Greg L. Bryan & Sun Kwok</i>	252	26-C1
INSTABILITIES IN LINE-DRIVEN STELLAR WINDS. V. EFFECT OF AN OPTICALLY THICK CONTINUUM <i>S. P. Owocki & G. B. Rybicki</i>	261	26-C11
SEARCH FOR VEGA-LIKE NEARBY STARS WITH 12 MICRON EXCESS <i>Hartmut H. Aumann & Ronald G. Probst</i>	264	26-D1
NONTHERMAL RADIO EMISSION FROM THE X-RAY-BRIGHT K5 IV STAR 1E 1751+7046 <i>Stephen L. Skinner</i>	272	26-D11
AMMONIA ABUNDANCES IN FOUR COMETS <i>Susan Wyckoff, Stephen C. Tegler, & Lisa Engel</i>	279	26-E5
THE BRIGHTNESS, ALBEDO, AND TEMPORAL VARIABILITY OF NEPTUNE <i>G. W. Lockwood, D. T. Thompson, B. L. Lutz, & E. S. Howell</i>	287	26-F1
THE STRUCTURE OF IO'S CORONA <i>N. M. Schneider, D. M. Hunten, W. K. Wells, A. B. Schultz, & U. Fink</i>	298	26-G1
ON THE TRANSPORT AND ACCELERATION OF SOLAR FLARE PARTICLES IN A CORONAL LOOP <i>James M. Ryan & Martin A. Lee</i>	316	27-A7

1991 FEBRUARY 20, Number 2

DISSIPATIONLESS COLLAPSE IN AN EXPANDING UNIVERSE <i>Neal Katz</i>	325	29-B4
NUMERICAL STUDY OF A PERTURBED EINSTEIN-DE SITTER COSMOLOGICAL MODEL <i>H. V. Fagundes & S. F. Kwok</i>	337	29-C4
STRIPPED INTERSTELLAR GAS IN CLUSTER COOLING FLOWS <i>Noam Soker, Joel N. Bregman, & Craig L. Sarazin</i>	341	29-C10
HYDRODYNAMIC CONSTRAINTS ON THE RADIAL STRUCTURE OF LATE-TYPE GALAXY DISKS <i>Curtis Struck-Marcell</i>	348	29-D5
BL LACERTAE OBJECTS AND RADIO-LOUD QUASARS WITHIN AN EVOLUTIONARY UNIFIED SCHEME <i>F. Vagnetti, E. Giallongo, & A. Cavaliere</i>	366	29-E11
FANAROFF-RILEY I GALAXIES AS THE PARENT POPULATION OF BL LACERTAE OBJECTS. II. OPTICAL CONSTRAINTS <i>P. Padovani & C. M. Urry</i>	373	29-F6
STATISTICAL-MECHANICAL SELECTION OF THE SHAPES OF DISK GALAXIES <i>David Montgomery & Y. C. Lee</i>	380	29-G1
STATISTICAL PROCEDURE AND THE SIGNIFICANCE OF PERIODICITIES IN DOUBLE-GALAXY REDSHIFTS <i>W. J. Cocke & W. G. Tiff</i>	383	29-G6

CONTENTS

v

	Page	Fiche
SATURATION OF THE SYNCHROTRON MEGAMASER <i>André R. Crussius-Wätzell</i>	390	30-A1
ON THE OBSERVABILITY OF THE GAMMA-RAY LINE FLUX FROM DARK MATTER ANNIHILATION <i>S. Rudaz & F. W. Stecker</i>	406	30-B5
THE DYNAMIC INSTABILITY OF ADIABATIC BLAST WAVES <i>Dongsu Ryu & Ethan T. Vishniac</i>	411	30-B12
THE INTERSTELLAR D ₁ LINE AT HIGH RESOLUTION <i>L. M. Hobbs & D. E. Welty</i>	426	30-D1
AN UNBIASED SURVEY FOR DENSE CORES IN THE LYND'S 1630 MOLECULAR CLOUD <i>Elizabeth A. Lada, John Bally, & Antony A. Stark</i>	432	30-D9
THE STRUCTURE AND KINEMATICS OF BIPOLAR OUTFLOWS: OBSERVATIONS AND MODELS OF THE MONOCEROS R2 OUTFLOW <i>Barry A. Meyers-Rice & Charles J. Lada</i>	445	30-E10
OBSERVATION OF A PULSAR WIND: CCD POLARIMETRY OF THE CRAB NEBULA <i>F. C. Michel, P. A. Scowen, R. J. Dufour, & J. J. Hester</i>	463	30-G1
NEAR-INFRARED SPECTROSCOPY OF THE PLANETARY NEBULA NGC 6572 <i>Richard J. Rudy, George S. Rossano, Peter Erwin, & R. C. Puetter</i>	468	30-G13
AN INFRARED ANALYSIS OF PUPPIS A <i>Richard G. Arendt, Eli Dwek, & Robert Petre</i>	474	31-A7
RELATIVE POPULATIONS FOR LEVELS IN THE 3d ² GROUND CONFIGURATION OF Fe VII <i>F. P. Keenan & P. H. Norrington</i>	486	31-B7
THE EFFECT OF VISCOSITY ON STEADY TRANSONIC FLOW WITH A NODAL SOLUTION TOPOLOGY <i>S. P. Owocki & G. P. Zank</i>	491	31-C1
ON THE DETECTABILITY OF PULSARS IN CLOSE BINARY SYSTEMS <i>Helen M. Johnston & Shrinivas R. Kulkarni</i>	504	31-D1
GAMMA-RAY LINES FROM TYPE I SUPERNOVAE <i>K. W. Chan & R. E. Lingenfelter</i>	515	31-E1
WOLF-RAYET STARS AS STARTING POINTS OR AS ENDPOINTS OF THE EVOLUTION OF MASSIVE STARS? <i>H. J. G. L. M. Lamers, A. Maeder, W. Schmutz, & J. P. Cassinelli</i>	538	31-F12
AXISYMMETRIC MODELS OF CIRCUMSTELLAR DUST SHELLS <i>Alan J. Collison & John D. Fix</i>	545	31-G7
DUST PROPERTIES AROUND EVOLVED STARS FROM FAR-INFRARED SIZE LIMITS <i>Paul M. Harvey, Daniel F. Lester, David Brock, & Marshall Joy</i>	558	32-A8
ON THE POSSIBLE BIPOLAR NATURE OF 21 MICRON IRAS SOURCES <i>Bruce J. Hrivnak & S. Kwok</i>	564	32-B1
IRAS LOW-RESOLUTION SPECTRAL OBSERVATIONS OF THE 10 AND 18 MICRON SILICATE EMISSION FEATURES <i>Janet P. Simpson</i>	570	32-B13
FORMULAE FOR THE CYCLOTRON LUMINOSITY OF MAGNETIZED PLASMA SLABS <i>G. Chanmugam & Steven H. Langer</i>	580	32-C11
NO EVIDENCE FOR TeV GAMMA RADIATION FROM 2CG 006-00 <i>H. I. Nel, B. C. Raubenheimer, G. C. de Jager, R. Buccheri, M. Busetta, A. R. North, & C. Brink</i>	585	32-D4
HD 50896: BLOBS IN A WIND WITH A COLLAPSED COMPANION OR ROTATING DISK WITH CENTRAL FILAMENTS? <i>Anne B. Underhill & Stephenson Yang</i>	588	32-D9
DETECTION OF POSSIBLE p-MODE OSCILLATIONS ON PROCYON <i>Timothy M. Brown, Ronald L. Gilliland, Robert W. Noyes, & Lawrence W. Ramsey</i>	599	32-E8
GRAVITATIONAL DIFFUSION OF SOLAR SYSTEM WIMPS <i>Andrew Gould</i>	610	32-F7
NEW ULTRAVIOLET SPECTROSCOPIC FEATURES FOUND IN COMET BRORSEN-METCALF (1989o) <i>C. R. O'Dell, Christopher O. Miller, Anita L. Cochran, William D. Cochran, Chet B. Opal, & Edwin S. Barker</i>	616	32-G1
LIGHT-CURVE INVERSION FORMALISM <i>Walter J. Wild</i>	622	32-G9

	Page	Fiche
WINDOW FOR THE DARK MATTER SOLUTION TO THE SOLAR NEUTRINO PROBLEM <i>David Dearborn, Kim Griest, & Georg Raffelt</i>	626	33-A1
CAN THE STARPATCH ON ξ BOOTIS A BE EXPLAINED BY USING TANGENTIAL FLOWS? <i>Clifford G. Toner & Barry J. LaBonte</i>	633	33-A10
COLLISIONAL EXCITATION AND RADIATIVE PROPERTIES OF N II: THE STRONG INTERCOMBINATION ($^1D-^3P^o$) TRANSITION AT 748 Å <i>T. M. Tripp, D. E. Shemansky, G. K. James, & J. M. Ajello</i>	641	33-B6
ABSTRACTS OF THE ASTROPHYSICAL JOURNAL SUPPLEMENT SERIES, 1991 MARCH		
COSMOLOGICAL <i>N</i> -BODY SIMULATIONS WITH A TREE CODE: FLUCTUATIONS IN THE LINEAR AND NONLINEAR REGIMES <i>Tatsushi Sugimoto, Yasushi Suto, François R. Bouchet, & Lars Hernquist</i>	652	33-C5
AN ULTRAVIOLET ATLAS OF QUASAR AND BLAZAR SPECTRA <i>A. L. Kinney, R. C. Bohlin, J. C. Blades, & D. G. York</i>	652	33-C5
STRUCTURE AND KINEMATICS OF THE BROAD-LINE REGIONS IN ACTIVE GALAXIES FROM <i>IUE</i> VARIABILITY DATA <i>Anuradha P. Koratkar & C. Martin Gaskell</i>	653	33-C6
INTERSTELLAR MATTER IN EARLY-TYPE GALAXIES. I. THE CATALOG <i>Morton S. Roberts, David E. Hogg, Joel N. Bregman, William R. Forman, & Christine Jones</i>	654	33-C7
THE FOURTH MIT-GREEN BANK 5 GHz SURVEY <i>Mark Griffith, Glen Langston, Mike Heflin, Sam Conner, & Bernard Burke</i>	654	33-C7
A 21 CENTIMETER LINE SURVEY OF A REGION AROUND FOUR OUTER GALAXY OPEN CLUSTERS <i>D. Leisawitz & E. J. de Geus</i>	654	33-C7
BOK GLOBULES AND SMALL MOLECULAR CLOUDS: DEEP <i>IRAS</i> PHOTOMETRY AND ^{12}CO SPECTROSCOPY <i>Dan P. Clemens, João Lin Yun, & Mark H. Heyer</i>	655	33-C8
THE SOLAR SPECTRUM BETWEEN 914 AND 117 Å <i>U. Feldman & G. A. Doschek</i>	655	33-C8
AUTHOR AND SUBJECT INDEXES TO VOLUMES 366-368, PARTS 1 AND 2	i	33-E1

